



U.S. Department
of Transportation
**Research and
Special Programs
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

MAY 30 2003

Mr. David W. Treadwell
Chief Engineer
CP Industries
2214 Walnut Street
McKeesport, PA 15132-7098

Reference No. 03-0043

Dear Mr. Treadwell:

This is in response to your request for a clarification of the regulations regarding repairs to DOT 3AAX and 3T cylinders (tube trailers). You state that the cylinders have a 4 3/4"-8 UN external thread on the necks for use in horizontally mounting the cylinders in bulkheads. The mounting thread has encountered excessive wear. Your company proposes to replace the damaged thread with a 4 1/2"-8UN mounting thread.

As you are aware, the Hazardous Materials Regulations contain no authorization for the repair of DOT 3 series cylinders. We suggest that you submit an application for exemption under the procedures in 49 CFR 107.105. The exemption request would be to § 180.211 for authorization to make repairs to DOT 3 series cylinders. The application should contain a detailed proposal of the repair work to be done and your proposed quality control plan. Should you have questions concerning the application information, please contact Mr. Mark Toughiry, Office of Hazardous Materials Technology, at 202-366-4545.

Sincerely,

Hattie L. Mitchell
Chief, Regulatory Review and Reinvention
Office of Hazardous Materials Standards



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CP INDUSTRIES
A Division of Reunion Industries, Inc.

2214 Walnut Street
McKeesport, PA 15132-7098
Tel: 412-664-6604

February 7, 2003

Mr. Edward T. Mazzullo
Director, Office of Hazardous Materials Standards
DHM-10
U.S. Department of Transportation
400 7th Street, SW
Washington, DC 20590-0001

Mitchell
\$178.34
Testing
03-0043

Subject: Interpretation of the Regulations Regarding Repairs
to DOT Specification 3AAX and 3T Trailer Tubes

Dear Mr. Mazzullo:

CP Industries is the oldest and largest manufacturer of DOT 3AAX and 3T specification jumbo trailer tubes in the United States. As you may be aware, there have been two accidents in the last two years involving tube trailers which have resulted in the release of hydrogen and subsequently a fire. The more serious of these two accidents occurred in Ramona, Oklahoma in May of 2001 and involved a hydrogen tube trailer which lost control and overturned. During the incident, one of the ten tubes on the trailer was ejected from the trailer and ruptured. Through participation in the NTSB investigation, CPI learned that the rupture of the tube occurred when the neck on one end of the tube pulled loose from the mounting flange imparting large bending stress on the opposite end of the tube which was still secured in the bulkhead. This concentrated loading resulted in an overstress fracture of the tube neck on the fixed end of the tube. Through our participation in the investigation of this accident, CPI believes that excessive wear of the mounting threads on the ends of the tube and the corresponding mounting flange is the primary cause of the tube ejection and failure.

Nearly all of the DOT 3AAX hydrogen tubes that CPI manufactures have a 4 3/4"-8UN external thread on the necks for mounting the tubes in bulkheads. Mounting flanges are threaded onto these neck threads and the flanges are then bolted to the bulkheads. Due to the dynamic loading caused by over-the-road transport, this threaded joint is susceptible to wear over time. Proper maintenance of the mounting flanges is required at the time of quinquennial retest of the tubes to ensure excessive damage does not occur. The scope of mounting thread maintenance is difficult to define since neither the DOT regulations or the Compressed Gas Association publications used at the time of retest address the issues of mounting threads. As a result, the acceptance criteria for the threads is left to the discretion of the retester or, in extreme cases, is not considered at all. Neglecting to maintain these threads can lead to excessive wear which greatly compromises the mechanical strength of this threaded joint. CPI strongly believes that the trailer involved in the Ramona accident is a prime example of this neglect.

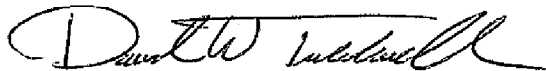
Since this incident, the issue of mounting thread wear has been receiving a great deal more attention by some of the major gas transporters in the U.S. Discussions with these transporters and some of the retesters have shown that the issue of thread wear is fairly common in the industry especially in older tubes.

February 7, 2003

To address the safety issue of mounting thread wear in a proactive fashion, CPI has developed a plan for the repair of tubes with damaged mounting threads which restores the damaged tubes to serviceability. The repair involves removing the 4 3/4" mounting threads and replacing them with a 4 1/2"-8UN mounting thread. CPI proposes to perform this modification at the time of recertification in conjunction with the visual inspection per CGA C-6 and hydrostatic test as prescribed in 49CFR 178.34. This hydrostatic test will be witnessed by our Third Party Inspection Agency. In addition to marking the tubes with our Retester Identification Number, CPI proposes to stamp the tubes with the word "RETHREAD" to indicate that the tube has been repaired. As with any repair to a pressure vessel, CPI feels very strongly that the modification to these tubes should only be performed by the original manufacturer or by a facility approved by the manufacturer of the tube. On separate occasions, I have spoken to both Mark Toughiry and Stan Staniszewski in the Office of Hazardous Materials Technology regarding this plan. Although both agreed with the plan outlined above, they indicated that since the DOT regulations were silent on repairs to tubes, the proper course of action was to submit this plan to your office for consideration. With this in mind, I respectfully request that your office consider the plan outlined above and provide written concurrence for this plan that we can offer to the industry for consideration. Your concurrence will provide assurance to the customers that our repair procedures are approved by the DOT and may help to prevent repairs to tubes from being performed by unqualified parties. I would also ask that you consider adding words to the regulations to allow for this type of repair to be performed under the supervision of the manufacturer.

Your prompt attention to this request would be greatly appreciated as CPI has already received two shipments of tubes at our plant which require repairs to the mounting threads, and we have received requests to repair several more. In all cases, the customers are interested to learn DOT's position on such repairs. As a follow-up to this letter, CPI intends to ask the Compressed Gas Association to open a docket for the development of guidelines for the inspection of mounting threads on tubes at the time of requalification. CPI feels very strongly that these two items are much needed tools that will serve to enhance the level of safety of the tube trailer fleet in the United States. Your cooperation in this matter is greatly appreciated. Please contact me if you have any questions or require additional information.

Sincerely,



David W. Treadwell
Chief Engineer
Telephone: 412-664-6613
Fax: 412-664-6623
E-mail: dave.treadwell@cp-industries.com

DWT/jjg

cc: JTC, JC, GAH